

REMARKS

I. At the bottom of page 2 of the Office Action, the Examiner raised an issue with the formal presentation of the claims in the previously filed paper.

The withdrawn claims now are canceled without prejudice to continued prosecution.

II. In item no. 5, at the top of page 3 of the Office Action, claims 12-14 and 24 were rejected under 35 U.S.C. § 112, second paragraph. The Examiner noted a minor informality with respect to claim language.

In light of the claim amendment, withdrawal of the rejection is in order.

III. In item no. 7, beginning at the bottom of page 3 of the Office Action, claims 12 and 24 were rejected under 35 U.S.C. § 102(b) over U.S. Patent No. 5,143,854.

The Examiner relied on the Affymax patent teaching making microarrays and having peptides thereon made by ionic polymerization linkers in sequential, repeated reaction steps.

The rejection is traversed for the following reasons.

U.S. Patent No. 5,143,854 discloses a combinatorial synthesis of polypeptides that occurs in sequential reaction steps. After every step (coupling of a monomer), the monomer is light-activated to couple a further monomer. In other words, the monomers cannot transfer the activation for polymerization for the addition of the next monomer thereto without outside influence.

On the other hand, current claim 24 requires in step a) a monolayer of radical polymerization initiators and the polymerization reaction occurs as a single reaction, such as a chain reaction, page 10, fourth full paragraph of the instant application. That is, once initiated at the surface, there is a continued, self-perpetuated polymerization of the monomers to form the chains at the surface.

Accordingly, the '854 patent does not anticipate claims 24 and 12 and withdrawal of the rejection is in order.

IV. In item no. 8 at the bottom of page 4 of the Office Action, claims 12 and 24 remain rejected under 35 U.S.C. § 102(e) over the Sundberg patent, U.S. Patent No. 5,919,523.

The rejection is traversed for the following reasons.

Again, as with the '854 patent discussed hereinabove, which arguments are herein incorporated by reference, the '523 patent relates to a sequential repetition of reactions requiring repeated activation, deblocking and reaction steps. That is different from the essentially, one-step chain reaction mechanism of the instant invention.

Accordingly, the '523 patent does not anticipate claims 24 and 12 and withdrawal of the rejection is in order.

V. In item no. 11, on page 6 of the Office Action, claims 12-14 and 24 remain rejected under 35 U.S.C. § 103(a) over the Coté et al. patent, U.S. Patent No. 6,485,703, in view of the DiCosmo et al. patent, U.S. Patent No. 6,132,765.

The rejection is traversed for the following reasons.

The '703 patent teaches an analyte sensitive compound within a hydrogel, column 6, lines 9-11.

In the process according to the '703 patent, e.g. Example 2, columns 40 and 41, polymer hydrogel precursors are mixed with initiator molecules and coated on the sensor surface where, after illumination, a polymer coating is formed. That is different from the instant invention where the fixed location of the initiator of the instant invention directs polymerization to the surface as compared to occurring in the solution.

Even if one wants to consider that process of the '703 patent as an immobilization of initiators, the resulting product is not a monolayer of polymerization initiators on the surface as recited in step a) of the instantly claimed invention. The monolayer is a layer of molecules present on the surface in a planar arrangement (i.e. in a more or less two-dimensional fashion). A viscous solution of initiators mixed with polymer precursors is not a monolayer of initiators.

The '765 patent relates to liposomes encapsulating a hydrogel. The intact liposomes are attached to a surface. The clearly is distinct from polymerization of monomers occurring at the surface as claimed in the instant application.

Thus, it is submitted that neither Cote et al. nor DiCosmo et al. disclose or suggest the gist of the invention that polymer initiators are first bound to the surface in the form of a monolayer and, in a subsequent step, a polymerization reaction is initiated on the thus modified

surface so that via a continuous chain reaction, polymerization of monomers occurs at the surface so that a "polymer brush" is formed showing a high degree of regularity. Both the '703 and '765 patents relate at best to an amorphous hydrogel. Neither patent relates to a surface on which a copolymer monomer is affixed.

Moreover, even if the documents were combined, the '703 and '765 patents would not teach, suggest or give guidance to the skilled person to the essence of the instant invention, i.e., the growing of a co-polymer chain via radical chain reaction from an initiator immobilized on a surface.

Accordingly, a prime facie case of obviousness has not been made and withdrawal of the rejection is in order.

VI. In item no. 13, at the bottom of page 7 of the Office Action, claims 13 and 14 were rejected under 35 U.S.C. § 103(a) over the Sundberg et al. patent in view of the Côté et al. patent.

The rejection is traversed for the following reasons.

The growing of copolymer chains from an initiated surface is not suggested in any or both of the '523 and '703 patents. The skilled person would still find no motivation to specifically use linkers immobilized on the surface which are used for initiating the polymerization reaction in either or both of the '523 and '703 patents. All of the prior arguments relating to the differences and deficiencies of the '523 and '703 patents as to the instant invention are herein incorporated by reference in entirety.

Neither of the two references teaches or suggests the immobilization of initiators on a surface and then following initiation, enabling a continuous chain reaction of polymerization of monomers at the surface to produce the polymerized surface of interest.

Thus, a prime facie case of obviousness has not been made and withdrawal of the rejection is in order.

CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance. Reexamination, reconsideration, withdrawal of the rejections and early indication of allowance

are requested respectfully. Should the Examiner believe that an interview would advance the prosecution of this application, the Examiner is invited to contact the undersigned at the exchange noted below.

Respectfully submitted,

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